

The RF Line

NPN Silicon

High-Frequency Transistors

Designed primarily for use in high-gain, low-noise, small-signal UHF and microwave amplifiers constructed with thick and thin-film circuits using surface mount components.

- T1 suffix indicates tape and reel packaging of 3,000 units per reel.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CBO}	20	Vdc
Emitter-Base Voltage	V_{EBO}	2.0	Vdc
Collector Current — Continuous	I_C	25	mAdc
Maximum Junction Temperature	T_{Jmax}	150	°C
Power Dissipation, $T_{case} = 75^\circ\text{C}$ Derate linearly above $T_{case} = 75^\circ\text{C}$ @	$PD(max)$	0.273 3.64	W mW/°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Storage Temperature	T_{stg}	-55 to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	275	°C/W

DEVICE MARKING

BFR92ALT1 = P2

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (1) ($I_C = 10\text{ mA}$)	$V_{(BR)CEO}$	15	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100\ \mu\text{A}$)	$V_{(BR)CBO}$	20	—	Vdc
Emitter-Base Breakdown Voltage ($I_C = 100\ \mu\text{A}$)	$V_{(BR)EBO}$	2.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 10\text{ V}$)	I_{CBO}	—	50	nA

ON CHARACTERISTICS

DC Current Gain ($I_C = 14\text{ mA}$, $V_{CE} = 10\text{ V}$)	h_{FE}	40	—	—
Collector-Emitter Saturation Voltage (1) ($I_C = 25\text{ mA}$, $I_B = 5.0\text{ mA}$)	$V_{CE(sat)}$	—	0.5	Vdc
Base-Emitter Saturation Voltage (1) ($I_C = 25\text{ mA}$, $I_B = 5.0\text{ mA}$)	$V_{BE(sat)}$	—	1.2	Vdc

NOTE:

1. Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

(continued)

BFR92ALT1

RF TRANSISTORS
NPN SILICON



CASE 318-08, STYLE 6
SOT-23
LOW PROFILE

ELECTRICAL CHARACTERISTICS — continued ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Typ	Unit
SMALL-SIGNAL CHARACTERISTICS			
Current-Gain — Bandwidth Product ($I_C = 14\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 500\text{ MHz}$)	f_T	4.5	GHz
Noise Figure ($V_{CE} = 1.5\text{ V}$, $I_C = 3.0\text{ mA}$, $R_S = 50\ \Omega$, $f = 500\text{ MHz}$)	NF	3.0	dB
Capacitance—Collector to Base ($V_{CB} = 10\text{ Vdc}$, $f = 1.0\text{ MHz}$)	C_{cb}	0.7	pF

PACKAGE DIMENSIONS

NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

STYLE B:
 PIN 1. BASE
 2. EMITTER
 3. COLLECTOR

**CASE 318-08
 ISSUE AF**

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